

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Previously presented) An optical transmission system comprising:
at least a first and a second terminal station, optically connected with each other by an optical link,
said first or said second terminal station configured to send on said optical link at least a first optical signal having a first direction, said system further comprising:
a first supervisory unit associated to a device disposed along said optical link,
said first supervisory unit being configured for generating a first supervisory signal,
said first supervisory unit coupled to at least one modulator that is configured to superimpose on said first optical signal said first supervisory signal;
and at least one pump source disposed along said optical link,
said pump source configured to send on said optical link a pump radiation in a second direction opposite to said first direction,
and configured to cause Raman amplification of said first optical signal and of said first supervisory signal superimposed on said first optical signal, wherein said at least one modulator is not said pump source.

2. (Previously Presented) The optical transmission system according to claim 1, wherein said first supervisory signal comprises at least an information signal on an operating state of said device.

3. (Previously Presented) The optical transmission system according to claim 1, wherein said device disposed along said optical link is a repeater and said at least one pump source is comprised in said repeater.

4. (currently amended) The optical transmission system according to claim 3, wherein said first supervisory unit is associated to said at least one pump source.

5. (Withdrawn) The optical transmission system according to claim 1, wherein said modulator is a lithium niobate modulator.

6. (Withdrawn) The optical transmission system according to claim 1, wherein said modulator is a semiconductor modulator.

7. (Withdrawn) The optical transmission system according to claim 1, wherein said modulator is a tunable band-pass filter.

8. (Previously Presented) The optical transmission system according to claim 1, wherein said modulator is a variable optical attenuator.

9. (Previously presented) An optical transmission system comprising:
at least a first and a second terminal station, optically connected with each other by an optical link,
said first or said second terminal station configured to send on said optical link at least a first optical signal having a first direction, said system further comprising:
a first supervisory unit associated to a device disposed along said optical link,
said first supervisory unit being configured for generating a first supervisory signal,
said first supervisory unit coupled to at least one modulator that is configured to superimpose on said first optical signal said first supervisory signal;
and at least one pump source disposed along said optical link,
said pump source configured to send on said optical link a pump radiation in a second direction opposite to said first direction, and configured to cause Raman amplification of said first optical signal and of said first supervisory signal superimposed on said first optical signal, wherein said modulator is a magneto-optical variable attenuator.

10. (Withdrawn) The optical transmission system according to claim 1, wherein said modulator comprises an optical amplifier, and said first supervisory signal is adapted to modulate a gain of said optical amplifier.

11. (Withdrawn) The optical transmission system according to claim 10, wherein said optical amplifier is an erbium-doped fiber amplifier.

12. (Withdrawn) The optical transmission system according to claim 11, wherein said erbium-doped fiber amplifier comprises at least one erbium-doped fiber and at least a further pump source adapted for emission of a pumping radiation for said erbium doped fiber, said first supervisory unit being associated to said further pump source, so that said first supervisory signal is adapted to modulate said pumping radiation for said erbium-doped fiber.

13. (Withdrawn) The optical transmission system according to claim 10, wherein said optical amplifier is a semiconductor amplifier.

14. (Withdrawn) The optical transmission system according to claim 10, wherein said optical amplifier is a co-propagating Raman amplifier.

15. (Withdrawn) The optical transmission system according to claim 14, wherein said co-propagating Raman amplifier comprises at least a further pump source being adapted to send

on said optical link a pumping radiation in said first direction, so as to cause Raman amplification of said first optical signal, said first supervisory unit being associated to said further pump source, so that said first supervisory signal is adapted to modulate said pumping radiation for Raman amplification.

16. (Previously Presented) The optical transmission system according to claim 1, wherein said device further comprises at least one photodetector adapted to receive at least a portion of said first optical signal and transform said portion of said first optical signal into an electrical signal.

17. (Previously Presented) The optical transmission system according to claim 16, wherein said first supervisory unit is associated to said photodetector and is adapted to discriminate a secondary supervisory signal carried by said first optical signal.

18. (Previously Presented) The optical transmission system according to claim 17, wherein said first supervisory unit is adapted to feed the discriminated second supervisory signal to said at least one modulator.

19. (Previously Presented) The optical transmission system according to claim 1, wherein said optical link comprises at least a first optical fiber and a second optical fiber, said

first optical fiber adapted to carry said first optical signal in said first direction and said second optical fiber adapted to carry a second optical signal in said second direction.

20. (Previously Presented) The optical transmission system according to claim 19, wherein said device comprises at least a second Raman pump source, said second Raman pump source being adapted to send on said second optical fiber a pump radiation in said first direction, opposite to the direction of said second optical signal, so as to cause Raman amplification of said second optical signal.

21. (Previously presented) An optical transmission system comprising:
at least a first and a second terminal station, optically connected with each other by an optical link,
said first or said second terminal station configured to send on said optical link at least a first optical signal having a first direction, said system further comprising:
a first supervisory unit associated to a device disposed along said optical link,
said first supervisory unit being configured for generating a first supervisory signal,
said first supervisory unit coupled to at least one modulator that is configured to superimpose on said first optical signal said first supervisory signal;
and at least one pump source disposed along said optical link,

said pump source configured to send on said optical link a pump radiation in a second direction opposite to said first direction, and configured to cause Raman amplification of said first optical signal and of said first supervisory signal superimposed on said first optical signal, wherein said optical link comprises at least a first optical fiber and a second optical fiber, said first optical fiber adapted to carry said first optical signal in said first direction and said second optical fiber adapted to carry a second optical signal in said second direction, and wherein said device comprises at least a second modulator, said second modulator being associated to said first supervisory unit.

22. (Previously Presented) The optical transmission system according to claim 21, wherein said first supervisory unit is adapted for generating at least a third supervisory signal, and said second modulator is adapted for superimposing said third supervisory signal to said second optical signal.

23. (Previously Presented) The optical transmission system according to claim 19, wherein said device further comprises at least a second photodetector, adapted to receive at least a portion of said second optical signal and transform said portion of said second optical signal in an electrical signal.

24. (Previously presented) The optical transmission system according to claim 23, wherein said first supervisory unit is configured to said second photodetector and is adapted to discriminate a fourth supervisory signal carried by said second optical signal.

25. (Previously Presented) The optical transmission system according to claim 22, wherein said first or said second terminal station comprises a second supervisory unit, being adapted to receive at least a portion of said first or said second optical signal from said optical link and discriminate from said first or said second optical signal said first or said third supervisory signal.

26. (Previously Presented) The optical transmission system according to claim 25, wherein said second supervisory unit is adapted to generate a fifth supervisory signal to be superimposed on said first or said second optical signal.

27. (Previously Presented) The optical transmission system according to claim 26, wherein said first or said second optical signal is a WDM optical signal.

28. (Previously Presented) The optical transmission system according to claim 27, wherein said first or said second terminal station comprises a plurality of transmitters adapted to emit a respective plurality of optical signals having different wavelengths, and a multiplexing

device adapted to multiplex said plurality of optical signals having different wavelengths in said WDM optical signal.

29. (Previously Presented) The optical transmission system according to claim 28, wherein said first or said second terminal station comprises a transmitter optical amplifier.

30. (Previously Presented) The optical transmission system according to claim 29, wherein said second supervisory unit is associated to said transmitter optical amplifier, so that said fifth supervisory signal is adapted to modulate a gain of said transmitter optical amplifier.

31. (Previously Presented) The optical transmission system according to claim 30, wherein said transmitter optical amplifier is a co-propagating Raman amplifier.

32. (Previously Presented) The optical transmission system according to claim 26, wherein said first or said second terminal station comprises at least a third modulator, said second supervisory unit being associated to said third modulator in order to superimpose said fifth supervisory signal to said first or said second optical signal.

33. (Previously Presented) The optical transmission system according to claim 32, wherein said third modulator is a variable optical attenuator.

34. (Previously Presented) The optical transmission system according to claim 33,
wherein said third modulator is a magneto-optical variable attenuator.

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